AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for producing DNA, which comprises the following steps (1) to (~~6~~8):

(1) dividing a DNA target sequence which has a length of 1000 nucleotides or less ~~and is a nucleotide sequence of DNA to be synthesized~~ into 2N sections, wherein N is a positive integer ~~more~~ greater than 1~~, of sections~~;

(2) designing partial sequences ~~each~~ having a length of 80 to 150 nucleotides ~~and containing a nucleotide~~which comprise the sequences of each of one of the sections of step 1 and a part of a nucleotide sequence of an adjacent section or parts of nucleotide sequences of adjacent sections, wherein the part or parts have such a length that the nucleotide sequence of the each part can ~~specifically make base pairing~~base pair with a nucleotide sequence complementary thereto;

(3) preparing oligomers comprising each ~~having each~~ of the 1st to Nth partial sequences of step (2) from the 5' end of the target sequence;

(4) preparing ~~and~~ oligomers each ~~having~~ comprising a nucleotide sequence complementary to each of the (N+1)th to (2N)th partial sequences from the 5' end of the target sequence;

(~~4~~5) performing a polymerase chain reaction ~~by~~ using ~~an~~ the oligomer of step (3) having the Nth partial sequence from the 5' end of the target sequence and an oligomer of step (4) having a nucleotide sequence complementary to the (N+1)th partial sequence from the 5' end of the target sequence under ~~such a~~ conditions such that these oligomers ~~should~~ act as primers and templates for a polymerase enzyme in the polymerase chain reaction;

(~~5~~a6) sequencing synthesized DNAs, and

(~~5~~b7) selecting DNA having a nucleotide sequence containing the Nth and (N+1)th partial sequences from the 5' end of the target sequence; and

(~~6~~8) repeating the following steps (~~6~~a8a) and (~~6~~b8b) and (68c) for ~~J~~ successive J's, wherein J increases for by a single integer for each repetition, and wherein J is an integer, to be from 1 to N-1:

(~~6a~~8a) performing polymerase chain reaction by using the selected DNA, an oligomer having the (N-J)th partial sequence from the 5' end of the target sequence and an oligomer having a nucleotide sequence complementary to the (N+1+J)th partial sequence from the 5' end of the target sequence under such a condition that the DNA and oligomers should act as primers and templates, and

(~~6b~~8b) sequencing synthesized DNAs, and

(~~6~~8c) selecting DNA having a nucleotide sequence containing the (N-J)th to (N+1+J)th partial sequences, thereby producing DNA having the target sequence.

2. (Currently amended) A method for producing DNA, which comprises the following steps (1) to (~~4~~8):

(1) dividing a DNA target sequence ~~which is a nucleotide sequence of DNA to be synthesized~~ into 2^n sections wherein n is a positive integer of 2 to ~~4, of sections~~,

(2) designing partial sequences ~~each containing~~comprising a nucleotide sequence of each of one of the sections of step 1 and a part of a nucleotide sequence of an adjacent section or parts of nucleotide sequences of adjacent sections, wherein the part or parts have such a length that the nucleotide sequence of each part can ~~specifically make base pairing~~base pair with a nucleotide sequence complementary thereto, and

(3) preparing oligomers ~~each having~~comprising an each of (odd number)th partial sequences and the part for base pairing of step (2) from the 5' end of the target sequence, and

(4) preparing oligomers ~~each having~~comprising a nucleotide sequence complementary to each of (even number)th partial sequences and the part for base pairing of step (2) from the 5' end of the target sequence,

(~~2~~5) repeating the following step (~~2a~~5a) for j, wherein j increases by a single integer for each repetition and wherein j is an integer, to be from 1 to 2^{n-1} to produce 2^{n-1} of reaction products,

(~~2a~~65a) performing polymerase chain reaction by using an oligomer having the (2j-1)th partial sequence from the 5' end of the target sequence and an oligomer having a nucleotide sequence complementary to the (2j)th partial sequence from the 5' end of the

target sequence under such a condition that these oligomers should act as primers and templates for a polymerase enzyme in the polymerase chain reaction,

(~~3~~7~~6~~) repeating the following step (~~3a~~6a) for ~~i~~ successive i's, wherein i increases by a single integer for each repetition and wherein i is an integer, to be from 2 to n:

(~~3a~~6a) repeating the following steps (~~3ai~~6ai) and (6aii) for ~~k~~ successive k's, wherein k increases by a single integer for each repetition and wherein k is an integer, to be from 1 to 2^{n-i} to produce 2^{n-i} of reaction products,

(~~3ai~~6ai) mixing a reaction mixture containing DNA having the $(2^i \cdot (k-1)+1)$th to $(2^i \cdot (k-1/2)$th partial sequences from the 5' end of the target sequence and a reaction mixture containing DNA having a sequence complementary to the $(2^i \cdot (k-1/2)+1)$th to $(2^i \cdot k)$th partial sequences from the 5' end of the target sequence, and

(6aii) performing polymerase chain reaction under such a condition that DNAs contained in the reaction mixtures should act as primers and templates, and

(4~~7~~) separating DNAs having a length expected from the target sequence from the reaction mixture, and

(8) sequencing the separated double strand DNAs to select a double strand DNA having the target sequence, thereby producing DNA having the target sequence.

3. (Currently amended) The method according to Claim 2, wherein, in the steps (~~2a~~5a) and (~~3ai~~6ai), a ratio of the oligomers added to the reaction mixture or a ratio of the reaction mixtures to be mixed is adjusted so that a single strand DNA required for a subsequent step should be synthesized in an amount larger than that of the other single strand DNA.